



2D21

THYRATRON

GAS TETRODE, MINIATURE TYPE

2D21

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:	<u>Min.</u>	<u>Av.</u>	<u>Max.</u>	
Voltage (AC or DC)	5.7	6.3	6.9	volts
Current, with heater volts = 6.3	0.54	0.60	0.66	amp

Cathode:

Heating Time, prior to
tube conduction. 10 sec

Direct Interelectrode Capacitances (Approx.):⁰

Grid No.1 to Anode.	0.026	μf
Input	2.4	μf
Output.	1.6	μf

Ionization Time (Approx.):

For conditions: dc anode volts = 100; grid-No.1
square-pulse volts = 50; peak anode amp.
during conduction = 0.5 0.5 μsec

Deionization Time (Approx.):

For conditions: dc anode volts = 125; grid-No.1
volts = -100, grid-No.1 resistor (ohms) =
1000; dc anode amp. = 0.1 35 μsec

For conditions: dc anode volts = 125; grid-No.1
volts = -10; grid-No.1 resistor (ohms) =
1000; dc anode amp. = 0.1 75 μsec

Maximum Critical Grid Current, with ac anode-
supply volts (rms) = 460, and average anode
amp. = 0.1 0.5 μamp

Anode Voltage Drop (Approx.) 8 volts

Grid-No.1 Control Ratio (Approx.) with grid-No.1
resistor (megohms) = 0; grid-No.2 volts = 0 250

Grid-No.2 Control Ratio (Approx.) with grid-No.1
resistor (megohms) = 0; grid-No.2 resistor
(megohms) = 0; grid-No.1 volts = 0 1000

⁰ Without external shield.

Mechanical:

Mounting Position Any

Maximum Overall Length. 2-1/8"

Maximum Seated Length 1-7/8"

Length, Base Seat to Bulb Top (excluding tip). 1-1/2" \pm 3/32"

Maximum Diameter. 3/4"

Bulb. T-5-1/2

Base. Small-Button Miniature 7-Pin

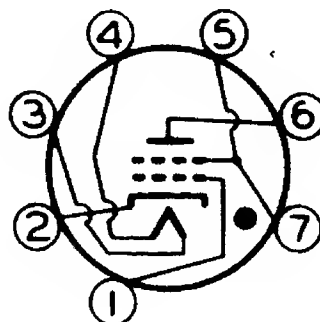
Basing Designation for BOTTOM VIEW. 7BN

Pin 1-Grid No.1

Pin 2-Cathode

Pin 3-Heater

Pin 4-Heater



Pin 5-Grid No.2

Pin 6-Anode

Pin 7-Grid No.2

← Indicates a change.

JUNE 15, 1948

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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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RELAY and GRID-CONTROLLED RECTIFIER SERVICE

Maximum Ratings, Absolute Values:

PEAK ANODE VOLTAGE:

Forward.	650 max.	volts
Inverse.	1300 max.	volts

GRID-No.2 (SHIELD-GRID) VOLTAGE:

Peak, before anode conduction.	-100 max.	volts
→ Average, during anode conduction [■]	-10 max.	volts

GRID-No.1 (CONTROL-GRID) VOLTAGE:

Peak, before anode conduction.	-100 max.	volts
→ Average, during anode conduction [■]	-10 max.	volts

CATHODE CURRENT:

Peak	0.5 max.	amp
→ Average [■]	0.1 max.	amp
→ Surge, for duration of 0.1 sec. max. . . .	10 max.	amp

GRID-No.2 CURRENT:

→ Average [■]	+0.01 max.	amp
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GRID-No.1 CURRENT:

→ Average [■]	+0.01 max.	amp
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PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode . .	100 max.	volts
Heater positive with respect to cathode . .	25 max.	volts

→ AMBIENT TEMPERATURE RANGE.	-75 to +90	°C
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→ Typical Operating Conditions for Relay Service:

RMS Anode Voltage.	117	400	volts
Grid-No.2 Voltage.	0	0	volts
RMS Grid-No.1 Bias Voltage [□]	5	-	volts
DC Grid-No.1 Bias Voltage	-	-6	volts
Peak Grid-No.1 Signal Voltage.	5	6	volts
Grid-No.1-Circuit Resistance	1.0	1.0	megohm
Anode-Circuit Resistance [#]	1200	2000	ohms

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	10 max.	megohms
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■ Averaged over any interval of 30 sec. max.

□ Approximately 180° out of phase with the anode voltage.

* Sufficient resistance, including the tube load, must be used under any conditions of operation to prevent exceeding the current ratings.

→ Indicates a change.

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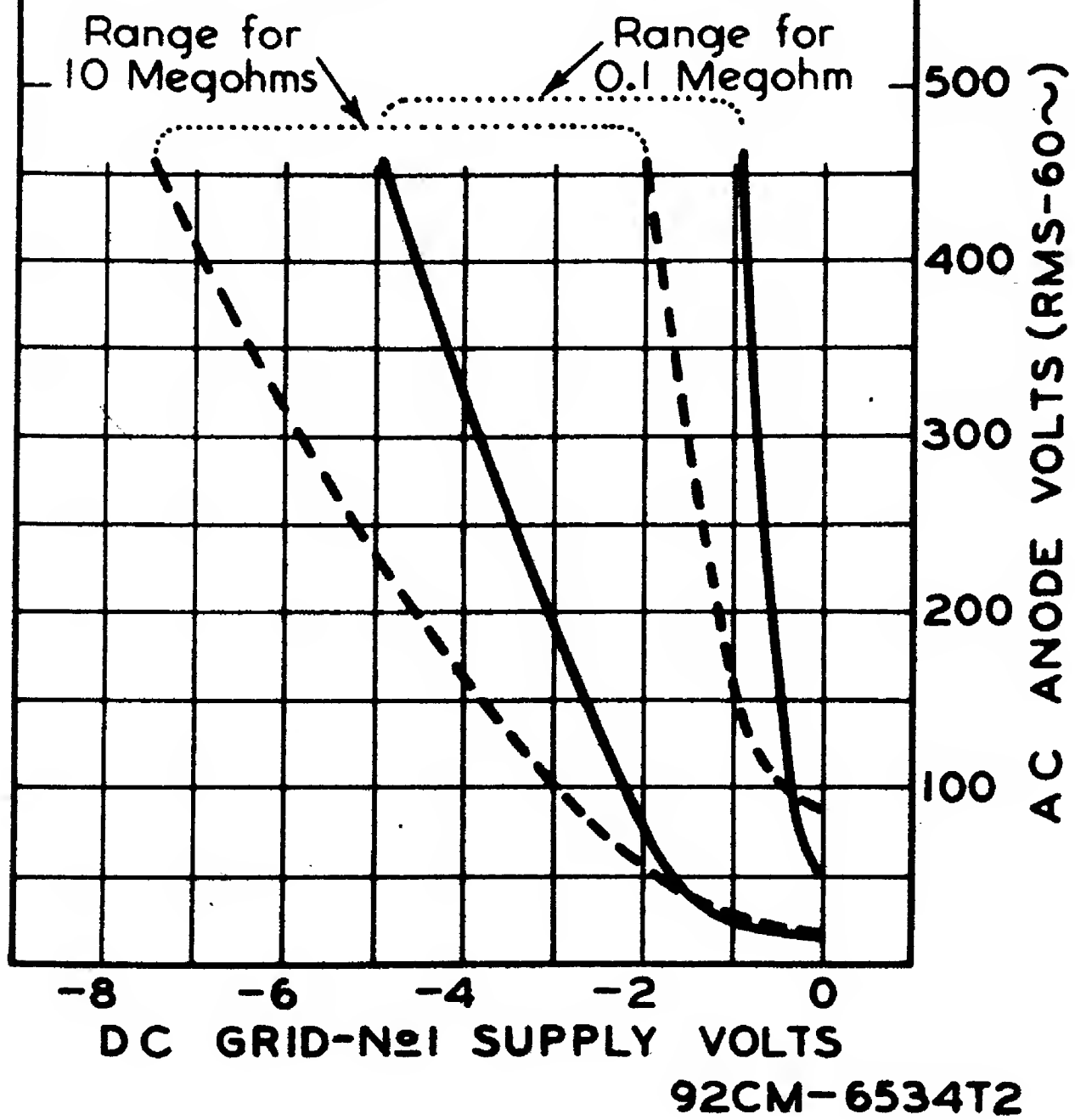
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OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

TYPE 2D21 SHIELD-GRID VOLTS=0
RANGES SHOWN ARE FOR TWO VALUES
OF GRID RESISTOR - 0.1 MEG. AND 10
MEG. -AND TAKE INTO ACCOUNT INITIAL
DIFFERENCES BETWEEN INDIVIDUAL
TUBES & SUBSEQUENT DIFFERENCES
DURING TUBE LIFE, FOR A HEATER-
VOLTAGE RANGE OF 5.7 TO 6.9 VOLTS



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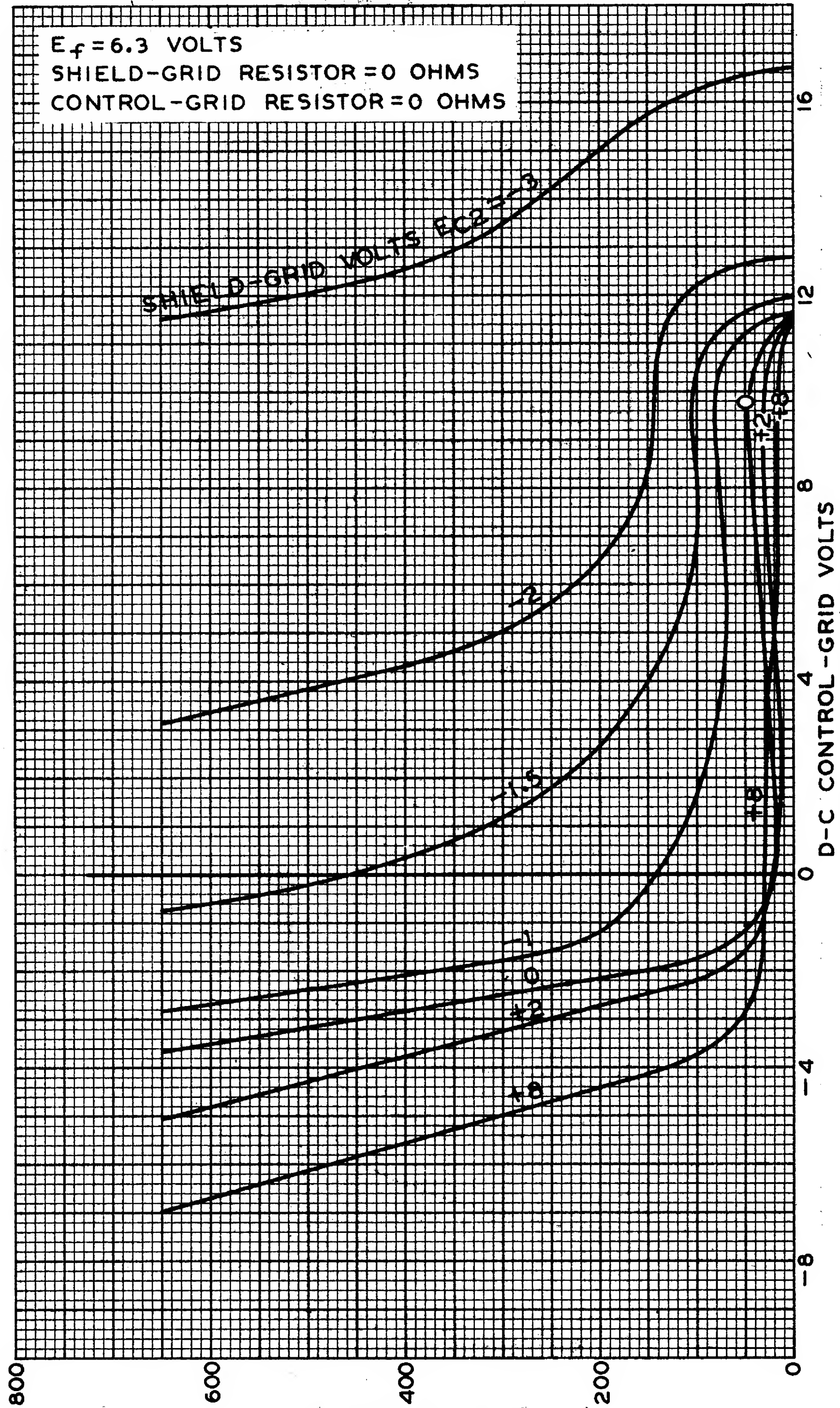
CE-6534T2



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AVERAGE CONTROL CHARACTERISTICS



MAY 2, 1944

RCA VICTOR DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6531R1

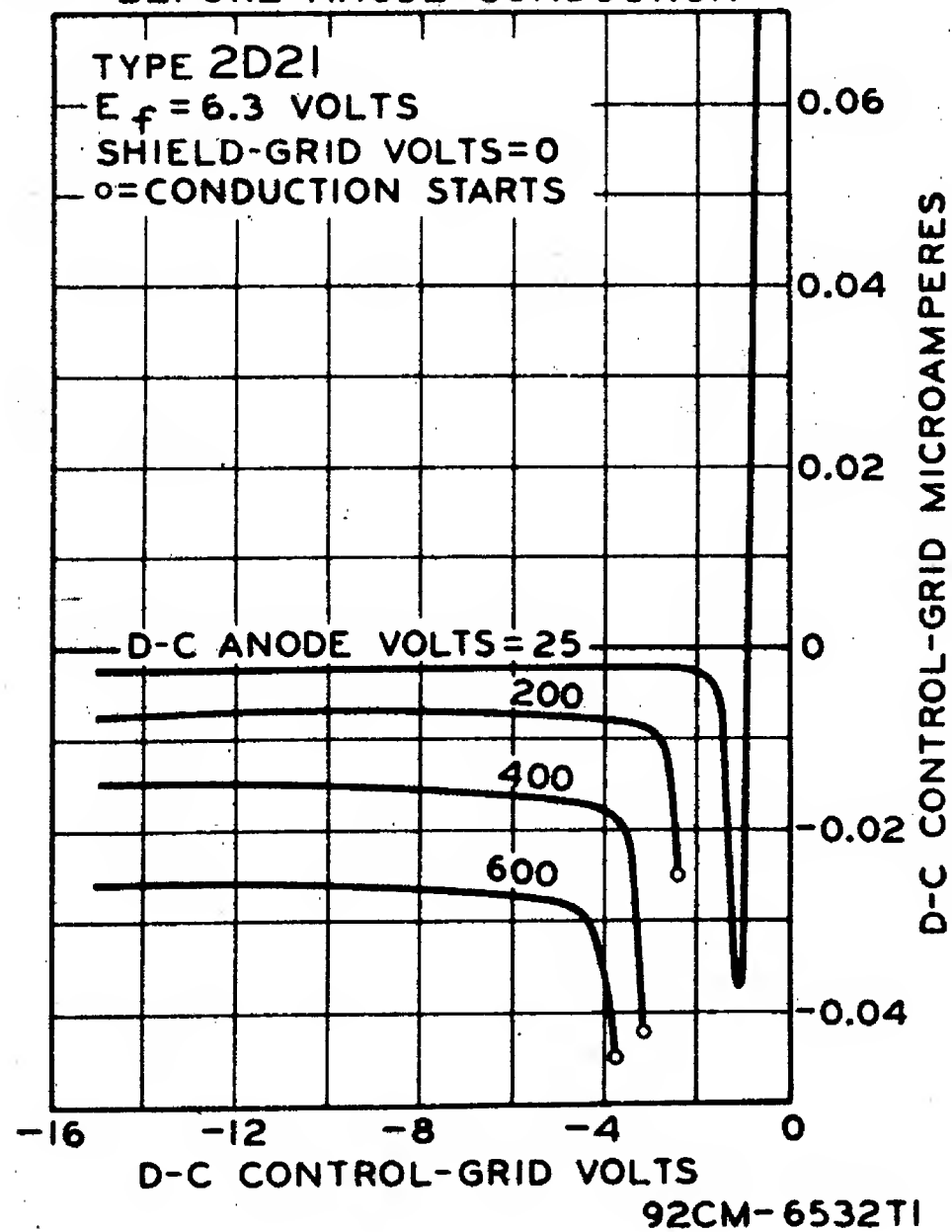
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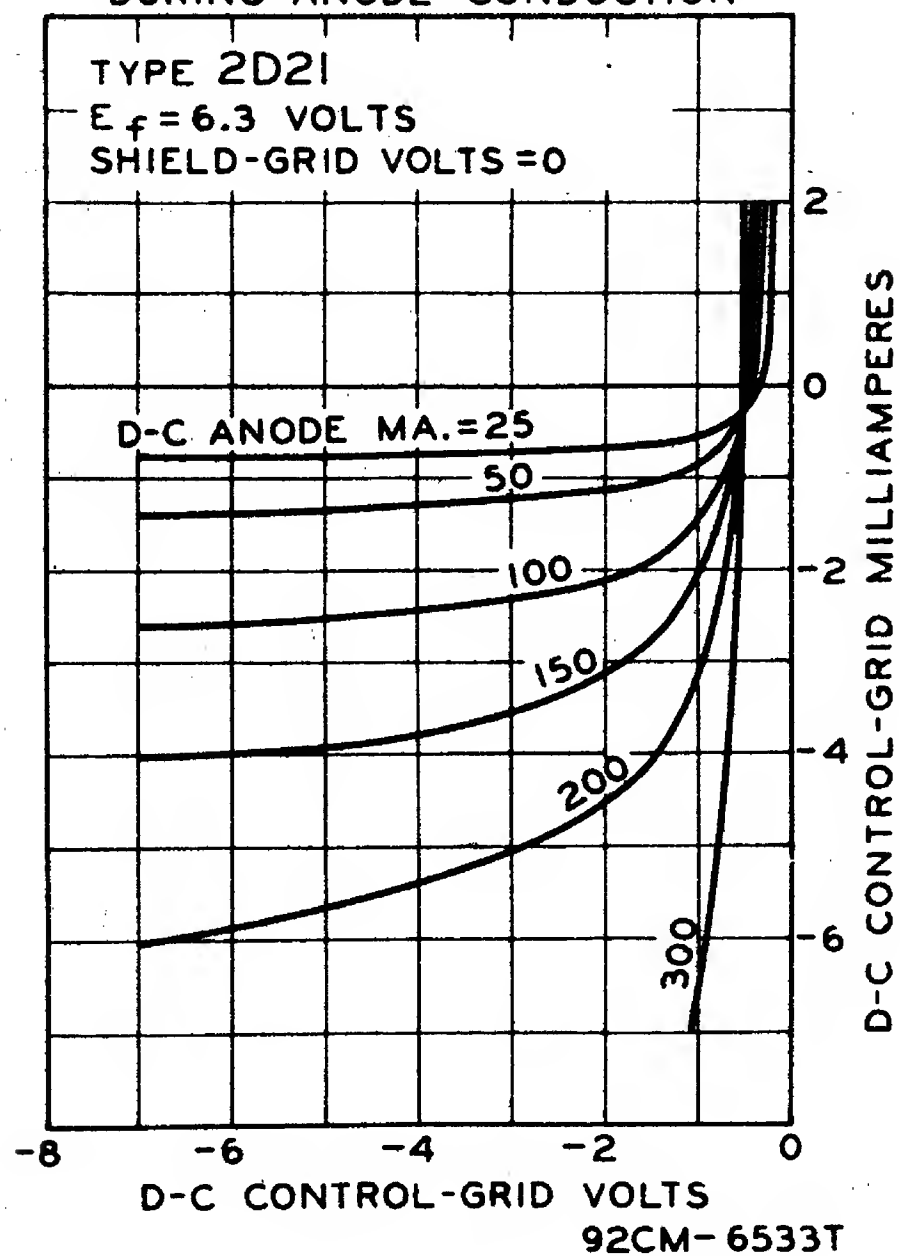
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THYRATRON

AVERAGE GRID CHARACTERISTICS BEFORE ANODE CONDUCTION



AVERAGE GRID CHARACTERISTICS DURING ANODE CONDUCTION



APRIL 1, 1944

RCA VICTOR DIVISION
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92CM-6532T1
 92CM-6533T